

bark and the soil and we figure about a 4" pot of fertilizer to the wheelbarrow load of material. That's a pretty safe mixture to use and, of course, we vary it and use some bone meal and we use some other organic materials. The plants in the greenhouse are fed once a month with 25-10-10 soluble fertilizer through an applicator.

HANS HESS: Our next topic for this morning is weed control using compressed air, a new concept. Mr. Asper Laursen was originally scheduled to give this paper but since he is unable to be here, it will be read by Mr. Ernest Otto Timm.

WEED CONTROL USING COMPRESSED AIR, A NEW CONCEPT

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An entirely new concept in physical weed control was developed and tested in Europe 12 years ago, and is now used successfully in hundreds of nurseries in Denmark, Germany, Holland and other countries.

The machine, a so-called weedblower, is basically a turbine-unit mounted on a cultivator and powered from the tractor's P.T.O.

Through an universal shaft and a transmission the turbines are brought up to between 15 - 20,000 R.P.M.

The strong jet of air, thereby created, is channeled through flexhoses down to a steel nozzle on a cultivator base, at an 90° angle to the plants in the nursery-rows.

Proper cultivation in the nursery rows will create a small ridge of soil along the base of the plants.

The weed blower works on the principle, that, when very young, the weed seedlings' root system is much shorter, and weaker, than that of the established nursery plants.

So when the weed seedlings appear on the soil ridge in the nursery rows the jet of air will remove the weed seedlings, together with the small soil ridge, entirely without disturbing the nursery plants, which have a much deeper root system.

Immediately behind the air outlets are cultivator teeth which build up a new ridge of clean soil around the plants.

In Canada I have worked with this machine for six years, and found it very useful. In large nurseries with long rows, it is possible to clean a block of nursery stock, between the plants *in* the rows, at the rate of 800 plants per minute, using a weed blower that takes two rows at the time.

In hardwood cuttings planted in the fall, and hilled up to prevent winter heaving we used the machine to uncover the cuttings in the spring, as well as to control the weeds amongst them.

At Brookdale-Kingsway Nurseries in Bowmanville where I am now employed, we bud a considerable amount of understock, fruit trees, shade trees, roses, etc.

This summer we tried the weed blower to clean the soil

away from the rootnecks prior to budding, it worked exceedingly well, we saved a considerable amount of hand labor, and there was no "bark scratching" on the understock.

The weedblower can of course also be used for uncovering the budded roses early in the spring prior to stubbing.

Several large nurseries in Canada are now using this new concept in weed control, forest-nurseries, owned by Provincial Government, as well as private nursery firms.

As the machine is available, custom made, to fit most tractors, and row distances, it can fit into most nursery-operations, except perennial-nurseries.

It can be used supplementary to a chemical weed control program or it can do the entire job.

Where I am now employed as propagator, the labour saved by uses of the weedblower, was turned into a better and larger production of softwood cuttings, and our fields were cleaner than ever before, without the worry of possible damage from chemical weed killers, or men with menacing hoes.

For anyone intersted, the machine can be seen in operation at our nurseries in Bowmanville, Ontario next summer.

CASE HOOGENDOORN: Can this machine be used for any weeds, regardless of size?

ERNEST TIMM: No, they can not be any higher than a foot, otherwise the roots are too well established.

JOHN ROLLER: Mr. Timm, could you give me the cost of that machine.

ERNEST TIMM: \$1600.

RALPH SHUGERT: Mr. Timm, would be \$1600 be for 1, 2, or 4 rows?

ERNEST TIMM: For 2 rows.

RALPH SHUGERT: What would one row cost?

ERNEST TIMM: About \$1500 because you've still have the big unit there. It's just more hoses or less hoses, just more shoes or less shoes, to add the additional rows.

RALPH SHUGERT: Where is this manufactured?

ERNEST TIMM: In Denmark.

RALPH SHUGERT: No manufacturer in Canada or in the United States that you know of?

ERNEST TIMM: No.

RALPH SHUGERT: In your observation of the machine, when you were hilling over seed rows or hilling over buds how high can you have you soil mounded and the machine will still remove the soil? Will it take soil away up to 12" high?

ERNEST TIMM: Yes, it would. Just last week we demonstrated it for a man who would like to use it for a stool bed like an EM type of any number. That's what he wants to use it for. Now you know how high they would be at least this high. The thing is that as you try to blow more soil you have to go slower, but you can do it.

CASE HOOGENDOORN: What is the amount of air pressure you have?

ERNEST TIMM: I'm sorry I don't know.

VOICE: Did you notice any effect of the static electricity that you obtain when you blew that air over the soil so fast?

ERNEST TIMM: No. It is no problem at all.

J. RAVENSTEIN: Is this machine available in the United States? Can you tell me the name of the dealer; I've been looking for this fellow for five years.

ERNEST TIMM: See me, I have some literature in back of the room.

HUGH STEAVENSON: It looks from one of the slides as though the soil was being blown away from the roots pretty badly. How do you get the soil back?

ERNEST TIMM: You have cultivating teeth right behind it.

HUGH STEAVENSON: Your teeth bring it right back?

ERNEST TIMM: Yes, you bring it right back so that if you want to blow next time, they are ready. Most people blow and leave it level. Next time they cultivate up the ridge, and the next time they blow it level again.

HUGH STEAVENSON: How about wet soil or damp soil?

ERNEST TIMM: The last time I was out, it rained 3 days solid and I had an appointment on Monday. And driving up that day I was quite worried if the thing would work. We had no trouble at all. In fact, that's when this slide was taken, after three days solid rain. And the thing is if you do get into heavier soil you can't go as fast, but you can still do it. You can do it even in heavy clay in the spring.

VOICE: How far does it move the soil laterally?

ERNEST TIMM: Well, you get a shield which the soil blows against. It will not blow into the next row. The soil blows against the shield and the cultivating teeth are right behind.

VOICE: Doesn't it create a problem for the operator when working in dry soil?

ERNEST TIMM: Well, he uses a bathtub at night.

HANS HESS: Our next speaker will be Mr. Hoy C. Grigsby who will tell us of his work with captan and the rooting of pine cuttings.

CAPTAN AIDS ROOTING OF LOBLOLLY PINE CUTTINGS

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Since 1942, when researchers began selecting the southern pines for specific traits, there has been increased interest in propagating them from cuttings. But in spite of an early concern with rooting techniques, accomplishments have been quite modest.

In 1961, I reported obtaining up to 52 percent rooting of loblolly pine (*Pinus taeda* L.) cuttings with indolebutyric acid